

## Application No. 772: Graphite surfer

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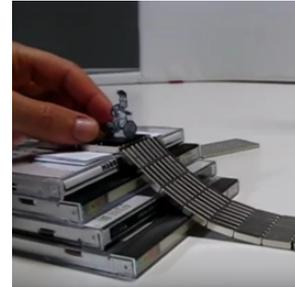
### Paper racer flies over magnetic tracks

At breakneck speed this death-defying cyclist flies over a 'half pipe' of magnets - without touching the magnetic track! How is that possible?

YouTube Video: [www.youtube.com/watch?v=Tjqzxf0wLxA](http://www.youtube.com/watch?v=Tjqzxf0wLxA)

This fun experiment is easy to replicate. You only need a few neodymium magnets and a pyrolytic graphite disc.

You can use magnets of different shapes and sizes. I used block magnets Q-15-04-04-MN ([www.supermagnete.fr/eng/Q-15-04-04-MN](http://www.supermagnete.fr/eng/Q-15-04-04-MN)) because they have an important feature - their magnetic field runs perpendicular to the side with the measurements 4x15mm.



Different sizes are also possible for the graphite disc. I used the disc of the DIALEV (no longer available at supermagnete.fr) - it measures 20x20x1 mm. At first, I played a little bit with the DIALEV itself before it was the half pipe's turn.

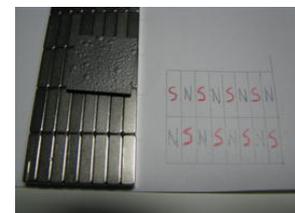
### Cyclist on graphite disc

To make the experiment a little more personable, I glued a cyclist caricature on the graphite disc. You can use a picture of your choice of course. The important thing is to keep the weight of the picture and adhesive as little as possible.



### Instructions for magnetic track

You can see on the photo how the magnets have to be arranged on the magnetic track. The north and south poles have to alternate like on a chess board.



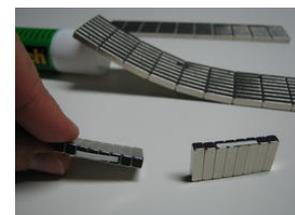
In order to assemble the magnetic track quickly, I recommend separating the pile of block magnets into 'slices' (see picture) and then connect the discs on the 4x4mm endings.



### Instructions for the half pipe

For building the upward-bent track pieces glue small strips of adhesive tape in between the magnetic discs, so they don't separate from each other.

If the graphite disc doesn't stay steady on the magnetic track, it means the track is not entirely even. Slide small paper strips underneath to lift up the lower part of the track.



Note from the supermagnete team: Other projects on the topic "levitation" can be found "here" ([www.supermagnete.fr/eng/projects/levitation](http://www.supermagnete.fr/eng/projects/levitation)).



### Articles used

Q-15-04-04-MN: Block magnet 15 x 4 x 4 mm ([www.supermagnete.fr/eng/Q-15-04-04-MN](http://www.supermagnete.fr/eng/Q-15-04-04-MN))

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